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alignment block:

US-09-494-297-2 x SP049397/rev ..

Align seg 1/1 to reverse of: SP049397 from: 1 to: 10826

[illegible]

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VERSION         AF009908.1 GI:2271466
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                  Bacteria; Firmicutes; Bacillus/Clostridium group; Streptococcaceae;
                  Streptococcus.
REFERENCE
AUTHORS         1 (bases 1 to 2801)
                  Katerov,V., Andreev,A., Schalen,C. and Totolian,A.A.
TITLE           Protein F, a fibrinectin-binding protein of Streptococcus pyogenes,
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JOURNAL         Microbiology 144 (Pt 1), 119-126 (1998)
MEDLINE         98129085
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                  Katerov,V.E., Andreev,A.S., Schalen,C. and Totolian,A.A.
AUTHORS         Direct Submission
TITLE           Submitted (20-JUN-1997) Med. microbiol, Lund University, Solvegatan
JOURNAL         23, Lund 22362, Sweden
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AUTHORS Talay, S.R.  
 TITLE Direct Submission  
 JOURNAL Submitted (13-JUN-1994) S.R. Talay, GBF, Mascheroder Weg 1, 3300  
 Braunschweig, FRG  
 COMMENT On Jul 17, 1994 this sequence version replaced gi:47433.  
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Align seg 1/1 to: SPSFB from: 1 to: 2263

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Bacteria; Firmicutes; Bacillus/Clostridium group; Streptococcaceae;
Streptococcus.
REFERENCE 1 (bases 1 to 2066)
AUTHORS Kline,J.B., Xu,S., Bisno,A.L. and Collins,C.M.
TITLE Identification of a fibronectin-binding protein (gfba) in
pathogenic group G streptococci
INFECT. Immun. 64 (6), 2122-2129 (1996)
66239026
JOURNAL 2 (bases 1 to 2066)
REFERENCE Kline,J.B., Xu,S., Bisno,A.L. and Collins,C.M.
AUTHORS Direct Submission
TITLE Submitted (06-JUL-1995) James B. Kline, Microbiology & Immunology,
University of Miami, 1600 NW 10th Ave, Miami, FL 33136, USA
JOURNAL Location/Qualifiers
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1444 TCGTTGAGACAGAAATACGAAAGACGCAAGTGTGATGGAGGCCAA 1493
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513 LeuAlaLLeTyrTyrPheThrAspSerAlaGluLeuAspLysAspLysLe 529
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1494 .....AGTGAAGTCTGTTGAATTTACGAAGACACTCA 1525
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529 uLysAspTyrHisGlyPheGlyAspMetAsnAspSerThrLeuAlaVal 546
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1526 AACAGCATGAGTGT..... 1541
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546 LaleLysLeuValGluTyrAlaGlnAspSerAsnProGluLeuThr 562
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1542 .....CAACAACTCCTCAGGTGAG 1562
   |::::::::::::::::::|
563 AspLeuAspPhePheLLeProAsnAsnLysLysTyrGlnSerLeuIleG 579
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1563 ACAGAAATACGAAAGACGACGA..... 1586
   |::::::::::::::::::|
579 yThrGlnTPrpHisProGluAspLeuValAspLLeIleArgMetGluAsp 596
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1587 .....GTGTGATGGAGGATC 1602
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596 yLysGluValLLeProValThrHisAsnLeuThrLeuArgLysThrVal 612

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1603 AAGTGAAGTCTGTGAATTACG.....AAGATACCTCA 1637
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1638 ACAGCATGAGTGTGCAACAACTCCT.....CAGTTGAGAC 1675
629 ULyAsnAsnLysGlnGluLeuLeuSerGlnThrValLysThrAspLysT 646
1676 AGAAGATACGAAAGACGAGCTGTGATGAGGAGCAAGTACAGTCTG 1725
646 hrAsnLeuGluPheLysAspGlyLysAlaThrIleAsnLeuLysGly 662
1726 TTGATTTACG..AAGACACTCAACAGCATGAGT.....GGT 1763
663 GluSerLeuThrLeuGlnGlyLeuProGluGlyLysSerThrLeuVal 679
1764 TTCAGTGAACAGGACGTGTGAGATACGGCTCCGAGTAGTGT 1813
679 sGluThrAspSerGluGlyLysValLysValAsnSerGlnGluValA 696
1814 CCATTTGACAAATATGAGCCCAAGTGAAGATCAGGAAAAACCTA 1863
696 laAsnAlaThrValSerLysThrGlyIleThrSerAspGluThrLeuAla 712
1864 CA..... 1865
713 PheGluAsnAsnLysGluProValValPro...ThrGlyValAspGln 728
1866 .....AAAATATACACCTATCTCTCCACAGAGATATTGACAA 1909
728 sIleAsnGlyThrLeuAlaLeuIleValIleAla 739
1910 TGTTTGGCCCTTCTGTGAATCCTTATTTGTCA 1943

seq_name: gb_ba1:AF009914
seq_documentation_block:
LOCUS AF009914 321 bp DNA BCT 13-FEB-1998
DEFINITION Streptococcus pyogenes fibronectin binding protein F gene, partial
ACCESSION AF009914
VERSION AF009914.1 GI:2267181
KEYWORDS
SOURCE Streptococcus pyogenes.
ORGANISM Streptococcus pyogenes.
Bacteria: Firmicutes; Bacillus/Clostridium group; Streptococcaceae;
Streptococcus.
1 (bases 1 to 321)
REFERENCE
AUTHORS Katerov,V., Andreev,A., Schalen,C. and Totolian,A.A.
TITLE Protein F, a fibronectin-binding protein of Streptococcus pyogenes,
also binds human fibrinogen: Isolation of the protein and mapping
of the binding region
JOURNAL Microbiology 144 (Pt 1), 119-126 (1998)
MEDLINE 98129085
REFERENCE
AUTHORS Katerov,V.E., Andreev,A.S., Schalen,C. and Totolian,A.A.
TITLE Direct Submission
JOURNAL Submitted (23-JUN-1997) Medical Microbiology, Lund University,
Solvegatan 23, Lund 22362, Sweden
FEATURES
source
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/strain="M4 strain Umea"
/db_xref="taxon:1314"
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US-09-494-297-2 x AF009914
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62 eAsnProAspSerSerGluThrArgTyrGlyLysThrGluSerThr 79
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52 AAGCCAGAT.....CCAGATATCCCTGCTATGATATATGCTTATG 95
79 aLArgGlyHisProTyrThrLysGlnPheArgValAlaHisAspLeuArg 95
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96 GTAAGGGGTATCTGATATGATATCAGTATGATATATCATGATTTAAG 145
96 ValAsnLeuGlnGlySerArgSerThrGlnValTyrCysPheAsnLeu 112
||||| |||
146 GTAATCTAAACGAGACAGCTACCAAGTTATTCCTTAAATATCA 195
||||| |||
112 sLysAlaPheProLeuGlySerAspSerSerValLysLysTyrLysL 129
||||| |||
196 AAAATTTTTCCTACATGTGAAAGCGTACTCAAAAAAGGTTTAAA 245
129 yShisAspGlyIleSerThrLysPheGluAspTyrAlaMetSerProArg 145
||||| |||
246 AAGCCAGGGGAATTCGATACTTTTGACCTTATGCAATGATCAAGA 295
||||| |||
146 IleThrGlyAspGluLeuAsnGln 153
||| |||
296 GTCCAGAGAGAAAGAACTTACTCA 319

seq_name: gb_ba1:AF009913
seq_documentation_block:
LOCUS AF009913 313 bp DNA BCT 13-FEB-1998
DEFINITION Streptococcus pyogenes fibronectin binding protein F gene, partial
ACCESSION AF009913
VERSION AF009913.1 GI:2267179
KEYWORDS
SOURCE Streptococcus pyogenes.
ORGANISM Streptococcus pyogenes.
Bacteria: Firmicutes; Bacillus/Clostridium group; Streptococcaceae;
Streptococcus.
1 (bases 1 to 313)
REFERENCE
AUTHORS Katerov,V., Andreev,A., Schalen,C. and Totolian,A.A.
TITLE Protein F, a fibronectin-binding protein of Streptococcus pyogenes,
also binds human fibrinogen: Isolation of the protein and mapping
of the binding region
JOURNAL Microbiology 144 (Pt 1), 119-126 (1998)
MEDLINE 98129085
REFERENCE
AUTHORS Katerov,V.E., Andreev,A.S., Schalen,C. and Totolian,A.A.
TITLE Direct Submission
JOURNAL Submitted (23-JUN-1997) Medical Microbiology, Lund University,
Solvegatan 23, Lund 22362, Sweden
FEATURES
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BASE COUNT 102 a 47 c 68 g 96 t  
 ORIGIN

alignment\_scores:  
 Quality: 262.50 Length: 106  
 Ratio: 3.547 Gaps: 2  
 Percent Similarity: 69.811 Percent Identity: 48.113

alignment\_block:  
 US-09-494-297-2 x AF009913 ..

Align seg 1/1 to: AF009913 from: 1 to: 313

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62 eAsnProAspSerSerSerGluTyrArgTrpTyrGlyTyrGluSerTyr 79
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52 AAGCGGAGAT.....CCAGATTATCCCTGTAGGTATGATCTTATG 95
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79 aLaArgGlyHisProTyrTyrLysGlnPheArgValAlaHisAspLeuArg 95
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96 GTAGGGGTATCTCGATATGATATCAGTAGTATATCATGATTAAAG 145
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96 ValAsnLeuGluGlySerArgSerTyrGlnValTyrCysPheAsnLeu 112
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146 GTAATATTAACGAGAGTAGCTACCAAGTCTTATGCTTAATATATCA 195
   ||||| ||| |||:||||:|||||
112 sLysAlaPheProLeuGlySerAspSerSerValLysLysTrpTyrLys 129
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196 AAAAATTTTTCGACATGTGAAAAGGCTTACAAAATGGTTTAA 245
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129 ySHisAspGlyIleSerThrLysPheGluAspTyrAlaMetSerProArg 145
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246 AAGCGGAGGGAATTCGATACCTTTTGACCTTCATGCATGAATCAAGA 295
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146 IleThrGlyAspGluLeu 151
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296 GTCCAGAGAGAGAACTT 313

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seq\_name: gb\_ba1:AF009910

seq\_documentation\_block:  
 LOCUS AF009910 326 bp DNA BCT 13-FEB-1998  
 DEFINITION Streptococcus pyogenes fibronectin binding protein F gene, partial  
 cds.  
 ACCESSION AF009910  
 VERSION AF009910.1 GI:2267173  
 KEYWORDS Streptococcus pyogenes.  
 SOURCE Streptococcus pyogenes.  
 ORGANISM Bacteria; Firmicutes; Bacillus/Clostridium group; Streptococcaceae;  
 Streptococcus.  
 REFERENCE 1 (bases 1 to 326)  
 AUTHORS Katerov,V., Andreev,A., Schalen,C. and Totolian,A.A.  
 TITLE Protein F, a fibronectin-binding protein of Streptococcus pyogenes,  
 also binds human fibrinogen: isolation of the protein and mapping  
 of the binding region  
 JOURNAL Microbiology 144 (Pt 1), 119-126 (1998)  
 MEDLINE 98129085  
 REFERENCE 2 (bases 1 to 326)  
 AUTHORS Katerov,V.E., Andreev,A.S., Schalen,C. and Totolian,A.A.

TITLE Direct Submission  
 JOURNAL Submitted (23-JUN-1997) Medical Microbiology, Lund University,  
 Solvegatan 23, Lund 22362, Sweden  
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BASE COUNT 118 a 41 c 75 g 92 t  
 ORIGIN

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 Percent Similarity: 66.957 Percent Identity: 44.348

alignment\_block:  
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Align seg 1/1 to: AF009910 from: 1 to: 326

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62 eAsnProAspSerSerSerGluTyrArgTrpTyrGlyTyrGluSerTyr 79
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52 TAAT.....TCAATCTCGATGTTCTGTGTAGTATGATCTGATATA 95
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79 aLaArgGlyHisProTyrTyrLysGlnPheArgValAlaHisAspLeuArg 95
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96 GCGGAGATTTGTTAAGAT.....CCCAATCTGAAA 127
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96 ValAsnLeuGluGlySerArgSerTyrGlnValTyrCysPheAsnLeu 112
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128 GTAATCTAATGAGATAGACTATCAAGCCTATGTTTAACGTGA 177
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112 sLysAlaPheProLeuGlySerAspSerSerValLysLysTrpTyrLys 129
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178 AAGGTTGAGCCAAAAGAGAAAGTACAGCTTAATGTGATATAA 227
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129 ySHisAspGlyIleSerThrLysPheGluAspTyrAlaMetSerProArg 145
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228 AATTGATGGGAGTACAGAACTTTTAAAAAATACGTGAACCCTAGG 277
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146 IleThrGlyAspGluLeuAsnGlnLysLeuArgAlaValMetTyr 160
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seq\_name: gb\_ba1:AF009920

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 LOCUS AF009920 348 bp DNA BCT 13-FEB-1998  
 DEFINITION Streptococcus pyogenes fibronectin binding protein F gene, partial  
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 ACCESSION AF009920  
 VERSION AF009920.1 GI:2267193  
 KEYWORDS Streptococcus pyogenes.  
 SOURCE Streptococcus pyogenes.  
 ORGANISM Bacteria; Firmicutes; Bacillus/Clostridium group; Streptococcaceae;  
 Streptococcus.  
 REFERENCE 1 (bases 1 to 348)

AUTHORS Katerov, V., Andreev, A., Schalen, C. and Totolian, A.A.  
 TITLE Protein F, a fibronectin-binding protein of *Streptococcus pyogenes*, also binds human fibrinogen: Isolation of the protein and mapping of the binding region  
 JOURNAL Microbiology 144 (Pt 1), 119-126 (1998)  
 MEDLINE 98129085  
 REFERENCE 2 (bases 1 to 348)  
 AUTHORS Katerov, V.E., Andreev, A.S., Schalen, C. and Totolian, A.A.  
 TITLE Direct Submission  
 JOURNAL Submitted (23-JUN-1997) Medical Microbiology, Lund University, Solvegatan 23, Lund 22362, Sweden  
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seq documentation block:  
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 ACCESSION AF009917  
 VERSION AF009917.1 GI:2267187  
 KEYWORDS  
 SOURCE  
 ORGANISM  
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*Streptococcus pyogenes*.  
 Bacteria; Firmicutes; Bacillus/Clostridium group; Streptococcaceae; Streptococcus.  
 REFERENCE  
 1 (bases 1 to 278)  
 Katerov, V., Andreev, A., Schalen, C. and Totolian, A.A.  
 TITLE Protein F, a fibronectin-binding protein of *Streptococcus pyogenes*, also binds human fibrinogen: Isolation of the protein and mapping of the binding region  
 JOURNAL Microbiology 144 (Pt 1), 119-126 (1998)  
 MEDLINE 98129085  
 REFERENCE 2 (bases 1 to 278)  
 AUTHORS Katerov, V.E., Andreev, A.S., Schalen, C. and Totolian, A.A.  
 TITLE Direct Submission  
 JOURNAL Submitted (23-JUN-1997) Medical Microbiology, Lund University, Solvegatan 23, Lund 22362, Sweden  
 FEATURES  
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ACCESSION AF009911
VERSION AF009911.1 GI:2267175
KEYWORDS
SOURCE Streptococcus pyogenes.
          Streptococcus pyogenes
          Bacteria; Firmicutes; Bacillus/Clostridium group; Streptococcaceae;
          Streptococcus.
REFERENCE 1 (bases 1 to 310)
AUTHORS Katerov,V., Andreev,A., Schalen,C. and Totolian,A.A.
TITLE Protein F, a fibronectin-binding protein of Streptococcus pyogenes,
also binds human fibrinogen: Isolation of the protein and mapping
of the binding region
JOURNAL Microbiology 144 (Pt 1), 119-126 (1998)
MEDLINE 98129085
REFERENCE 2 (bases 1 to 310)
AUTHORS Katerov,V.E., Andreev,A.S., Schalen,C. and Totolian,A.A.
TITLE Direct Submission
JOURNAL Submitted (23-JUN-1997) Medical Microbiology, Lund University,
Solvegatan 23, Lund 22362, Sweden
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US-09-494-297-2 x AF009911 ..
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62 eaanProAspSerSerSerLutyrArgTrpTyrGlyTyrGluserTyr 79
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52 AACCCCGAT.....CCAGATTATCCCTGTAGTAAATTAATTCGTAT. 94
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95 ..AGAGA.....ATATTTCAGACATATCACAATTAAAA 127
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96 ValAsnLeuGlnGlySerArgSerTyrGlnValTyrCysPheAsnLeu 112
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128 GTAATCTAAAGAGAGTAGAGATCAAGCGATATGTTTAACCTAAC 177
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178 AAATACTTCCTCGCCCACTTATAGTACTACAAATAATTTTACAGA 227

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129 yshIsaspglyIleSerThrLysPheGlnAspTyrAlaMetSerProArg 145
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278 GTTWTAGATGAGATTTAGATAA 301
seq_name: gb_ba1:AF009918
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DEFINITION Streptococcus pyogenes fibronectin binding protein F gene, partial
            cds.
ACCESSION AF009918
VERSION AF009918.1 GI:2267189
KEYWORDS
SOURCE Streptococcus pyogenes.
          Streptococcus pyogenes
          Bacteria; Firmicutes; Bacillus/Clostridium group; Streptococcaceae;
          Streptococcus.
REFERENCE 1 (bases 1 to 309)
AUTHORS Katerov,V., Andreev,A., Schalen,C. and Totolian,A.A.
TITLE Protein F, a fibronectin-binding protein of Streptococcus pyogenes,
also binds human fibrinogen: Isolation of the protein and mapping
of the binding region
JOURNAL Microbiology 144 (Pt 1), 119-126 (1998)
MEDLINE 98129085
REFERENCE 2 (bases 1 to 309)
AUTHORS Katerov,V.E., Andreev,A.S., Schalen,C. and Totolian,A.A.
TITLE Direct Submission
JOURNAL Submitted (23-JUN-1997) Medical Microbiology, Lund University,
Solvegatan 23, Lund 22362, Sweden
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62 eaanProAspSerSerSerLutyrArgTrpTyrGlyTyrGluserTyr 79
   :|||:|||||
52 TAGTCCA.....AATCCTGAGTTTCCTTGTAGCGGTTATGAGAGCTTAT. 94
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79 aAlrgGlyHisProTyrTyrLysGlnPheArgValAlaHisAspLeuArg 95
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95 ..AGAGT.....TCTTCTGAGATATCATGATTAAT 127

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96 ValasneugluglySerArgSerTyrGlnValTyrCysPheAsnLeuLys 112
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178 AAGACAGACGAGGAGTAAAGTTAAGAAAAAATGCTTCAAAA 227
129 YSHASPGlyIleSerThrIysPheGluAspTyrAlaMetSerProArg 145
228 AAGTGATGGATGATATGCTGTTTAAATAATGACGTAATCTCTAGA 277
146 IleThrGlyAspGluLeuAsnGlnLysLeu 155
278 GTTAATTGATGAGATTGTAAGACGTAACATT 307

seq_name: gb_ba1:AF009915
seq_documentation_block:
LOCUS AF009915 309 bp DNA BCT 13-FEB-1998
DEFINITION Streptococcus pyogenes fibronectin binding protein F gene, partial
ACCESSION AF009915
VERSION AF009915.1 GI:2267183
KEYWORDS
SOURCE Streptococcus pyogenes.
ORGANISM Streptococcus pyogenes.
REFERENCE
AUTHORS Katerov,V., Andreev,A., Schalen,C. and Totolian,A.A.
TITLE Protein F, a fibronectin-binding protein of Streptococcus pyogenes,
also binds human fibrinogen: isolation of the protein and mapping
of the binding region
JOURNAL Microbiology 144 (Pt 1), 119-126 (1998)
MEDLINE 98129085
AUTHORS Katerov,V.E., Andreev,A.S., Schalen,C. and Totolian,A.A.
TITLE Direct Submission
JOURNAL Submitted (23-JUN-1997) Medical Microbiology, Lund University,
Solvegatan 23, Lund 22362, Sweden
FEATURES
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2 TTGGCTCAAGTACGCTATCTGCGGATGAGAAAGCTGTGCGGAATTTTAA 51

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62 eAsnProAspSerSerSerGluTyrArgTyrTyrGlyTyrGluSerTyrV 79
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79 aLArgGlyHisProTyrTyrLysGlnPheArgValAlaHisAspLeuArg 95
95 ..AGAGGA.....ATATTGCAAGATATACACATTATAAA 127
96 ValasneugluglySerArgSerTyrGlnValTyrCysPheAsnLeuLys 112
128 GTTAATCTAAAGAGAGTAAGAGATACAGCGTATGTTTAACCTAAC 177
112 slsAlaPheProLeuGlySerAspSerSerValIysLysTyrLysL 129
178 AAAATACTTCTCCTCCCTGCTTATATGATCAACAATATTTTTCACAAGA 227
129 YSHASPGlyIleSerThrIysPheGluAspTyrAlaMetSerProArg 145
228 AAATGATGGAGGTGGATCAGCGTTCAATCTTATACGCAATCTTAGG 277
146 IleThrGlyAspGluLeuAsnGln 153
278 GTTTAGATGAGAAATTGATGATAA 301

seq_name: gb_ba1:AF009912
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LOCUS AF009912 282 bp DNA BCT 13-FEB-1998
DEFINITION Streptococcus pyogenes fibronectin binding protein F gene, partial
ACCESSION AF009912
VERSION AF009912.1 GI:2267177
KEYWORDS
SOURCE Streptococcus pyogenes.
ORGANISM Streptococcus pyogenes.
REFERENCE
AUTHORS Katerov,V., Andreev,A., Schalen,C. and Totolian,A.A.
TITLE Protein F, a fibronectin-binding protein of Streptococcus pyogenes,
also binds human fibrinogen: isolation of the protein and mapping
of the binding region
JOURNAL Microbiology 144 (Pt 1), 119-126 (1998)
MEDLINE 98129085
AUTHORS Katerov,V.E., Andreev,A.S., Schalen,C. and Totolian,A.A.
TITLE Direct Submission
JOURNAL Submitted (23-JUN-1997) Medical Microbiology, Lund University,
Solvegatan 23, Lund 22362, Sweden.
FEATURES
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US-09-494-297-2 x AF009912 ..

Align seg 1/1 to: AF009912 from: 1 to: 282

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62 easnProAspSerSerSerGluTyrAlaGTPyrGlyTyrGluSerTyrV 79
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52 TACTCCA.....AATCCTGAGTTCTCTTGATGTTGATGATTCCTAT. 94
79 aLArgGlyHisProTyrTyrTyrGlnPheArgValAlaHisAspLeuArg 95
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96 ValAsnLeuGluGlySerArgSerTyrGlnValTyrCysPheAsnLeu 112
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128 GTAATCTAATAAGAGTAGAGTATCAAGCGTATGTTTAACTAAC 177
112 sLysAlaPheProLeuGlySerAspSerSerValLysLysTyrTyrLysL 129
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178 AATAATCTTCTCGCCGCCACTATAGTACTACAAATATTTTACAGA 227
129 ySHIsaspGlyIleSerThrLysPheGluAspTyrAlaMetSerProArg 145
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seq\_documentation\_block:

LOCUS AF009919 308 bp DNA BCT 13-FEB-1998

DEFINITION Streptococcus pyogenes fibronectin binding protein F gene, partial cds.

ACCESSION AF009919

VERSION AF009919.1 GI:2267191

KEYWORDS

SOURCE

ORGANISM

REFERENCE

AUTHORS

TITLE

JOURNAL

MEDLINE

CDS

FEATURES

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US-09-494-297-2 x AF009919 ..

Align seg 1/1 to: AF009919 from: 1 to: 308

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62 easnProAspSerSerSerGluTyrAlaGTPyrGlyTyrGluSerTyrV 79
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52 TACTCCA.....AATCCTGAGTTCTCTTGATGTTGATGATTCCTAT. 94
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95 ..AGAGT.....TGTTCTGAGATATCATCAATTTAAAA 127
96 ValAsnLeuGluGlySerArgSerTyrGlnValTyrCysPheAsnLeu 112
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178 AAGACAGGAACCGAGTAGGTTATGCTTAAAGAAAAAATGGTTCAAA 227
129 ySHIsaspGlyIleSerThrLysPheGluAspTyrAlaMetSerProArg 145
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228 AAGTGTATGTCATAATGCTGTTTAAAAAATATGTAAGCTAATCTTAG 277
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BASE COUNT

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